



SIL RS-89

Service Information Letter - Fuel Systems

SMALL RECIPROCATING ENGINES

RSA-10ED1

Issued 02/02/09

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**SUBJECT: Service Information for RSA-10ED1 Fuel Injection Servo
Parts List 2576554-3.**

PURPOSE: To provide repair shops with flow bench limits and service information for RSA-10ED1 fuel injection servo parts list 2576554-3.

Product improvement, compliance is not mandatory however recommended at overhaul.

- A. **EFFECTIVITY:** This Service Information Letter is applicable to all RSA-10ED1 fuel injection servos, parts list 2576554. These servos are installed on Lycoming TIO-540-AH1A engines.
- B. **DESCRIPTION:** The service information found in manual 15-458G Revision 1, for parts list 2524273-12 is applicable to parts list 2576554-3 except as follows:

1. Reference manual 15-458G Revision 1, IPL, Figure 1:

Item Number	2576554-3 Part Number	Description
1	2576554-3	Fuel Injection Servo
80	2542856	Lever, Throttle
85	2529453	Adapter, Fuel Inlet
86	2575904	Nut, Flared Tube
115	2576553-C	Fuel Injection Servo, Basic Assy

2. Reference manual 15-458G Revision 1, IPL, Figure 3:

Item Number	2576554-3 Part Number	Description
115	2577256	Lever Assembly, Idle valve
160	2577001	Stem, Idle valve
180	2577201-1505	Valve, Lower Idle
40	2541326	Plate, Mixture Control

3. Reference manual 15-458G Revision 1, IPL, Figure 4:

Item Number	2576554-3 Part Number	Description
70	2577125	Diaphragm Assembly, Air
100	2577245	Seal, Servo Stem
105	Not used	
160	2523966	Body Assembly, Main

4. Reference manual 15-458G Revision 1, Calibration and Service Limits:

Specification Type	2576554-3 Test Specification	Applicable Figure
Calibration Limits	30073-04	New
Service Limits	30074-03	New

These Specifications are included with this service information letter; see pages 3 & 4.

5. Reference manual 15-381G, History of Changes:

<u>Date</u>	<u>IC Number</u>	<u>Description</u>
<u>Issue 1</u>		
04-30-97	7	Released to production
5-19-97	8	Idle Valve 2541438 was 2542172.
06-26-97	9	Idle Valve 2577006 was 2541438.
07-10-97	9	Idle Valve 2539612 was 2577006.
12-08-97	10	Venturi 2542034 was 2523969.
09-02-98	11	2576553-A Basic Assembly was 2549041.
10-30-98	12	2538890 Plug was 2537846, relocated outlet.
12-28-98	14	Idle Lever Assy 2577103 was 2577002.
<u>Issue 2</u>		
12-12-00	18	Idle Valve 2577151 was 2539612, Basic Assy 2576553-B was 2576553-A.
4-25-08	19	Gasket 2577258 was 365533
<u>Issue 3</u>		
4-25-08	20	2576553-C Basic Assembly was 2576553-B Idle Valve 2577201-1505 was 2577151 Air Diaphragm 2577125 was 2538420 Center Body Seal 2577245 was 2539560 & 2539561 Mixture Plate 2541326 was 2521757 Idle Lever Assembly 2577256 was 2577103 Flow Bench T.S. 30073-04 was 30073-02 Flow Bench T.S. 30074-03 was 30074-02

30073-04
Labbe 1-26-09

TEST SPECIFICATION
CALIBRATION LIMITS

PRECISION AIRMOTIVE CORPORATION - FUEL CONTROLS - MARYSVILLE, WASHINGTON

INSTALLATION PARTS LIST: _____ MODEL: RSA-10ED1 SERIAL NUMBER: _____

OPERATOR: _____ DATE: _____

BASIC PARTS LISTS: 2576553 FUEL PRESSURE: 25-27 PSI FUEL SP. GRAV. _____ @ _____ °F

	1	2	3	4	5
METERING SUCTION (INCHES OF WATER)	0	0	2.7	6.6	22.3
CORRESPONDING AIRFLOW (LBS/HR)	0	0	700	1100	2000
MIXTURE CONTROL POSITION	RICH	ICO	RICH	RICH	RICH
THROTTLE POSITION	W/O	W/O	W/O	W/O	W/O
FLOWMETER LIMITS					
MINIMUM OBSERVED (LBS/HR)	35.0	0	77.0	119.0	221.0
MAXIMUM	40.0	5 cc/min	88.0	125.0	228.0
BURETTE TIME LIMITS (Using MIL-C-7024 Type II STODDARD)					
BURETTE VOLUME (cc)	200		500	850	2000
MINIMUM OBSERVED (SECONDS)	30.5		34.7	41.5	53.5
MAXIMUM	34.9		39.6	43.6	55.2
METERING HEAD AVG OBSERVED (" STODDARD)					
	0.1		6.5	15.7	51.7

PROCEDURE FOR SPLIT HEAD CHECK

1. Close throttle to .006" shim in bore.
2. Adjust idle fuel flow to 10.5-11.5 lbs/hr with wheel centered. Observe metering head. Energize boost pump to provide 35 - 40 psi. After stabilizing, fuel flow must be within $\pm .5$ lbs/hr of value observed at specified fuel inlet pressure. Turn boost pump off.
3. Remove .006" shim.
4. Close throttle so that fuel flow is less than 6 lbs/hr. Observe metering head. Metering head shall be no more than 5" above value observed in step 2.

TEST SPECIFICATION
30074-03
 SERVICE LIMITS
3/2/08 11-11-08

PRECISION AIRMOTIVE CORPORATION - FUEL CONTROLS - MARYSVILLE, WASHINGTON

INSTALLATION PARTS LIST: _____ MODEL: RSA-10ED1 SERIAL NUMBER: _____

OPERATOR: _____ DATE: _____

BASIC PARTS LISTS: 2576553 FUEL PRESSURE: 25-27 PSI FUEL SP. GRAV. _____ @ _____ OF

	1	2	3	4	5
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METERING SUCTION (INCHES OF WATER) 0 0 2.7 6.6 22.3

CORRESPONDING AIRFLOW (LBS/HR) 0 0 700 1100 2000

MIXTURE CONTROL POSITION RICH W/O W/O W/O RICH W/O

THROTTLE POSITION RICH W/O W/O W/O RICH W/O

FLOWMETER LIMITS

	1	2	3	4	5
MINIMUM	33.0	0	75.0	117.0	219.0
OBSERVED (LBS/HR)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
MAXIMUM	42.0	5 cc/min	90.0	127.0	230.0

BURETTE TIME LIMITS (Using MIL-C-7024 Type II STODDARD)

	1	2	3	4	5
BURETTE VOLUME (cc)	200	500	850	2000	2000
MINIMUM	29.1	33.9	40.8	53.1	53.1
OBSERVED (SECONDS)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
MAXIMUM	37.0	40.7	44.3	55.7	55.7

METERING HEAD AVG OBSERVED (" STODDARD)

	1	2	3	4	5
METERING HEAD AVG	0.1	6.5	15.7	51.7	51.7
OBSERVED (" STODDARD)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>